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ABSTRACT

This paper indicates the relevance of psycholinguistic research to the study of the interpretation process. Citing selected experiments that demonstrate some of the possibilities for extending research into the language experience of the interpreter, the paper argues that such an approach might lead into examining the experience of imagery, semantic processing of ambiguity, production of speech and silence, and exercise of memory. It contends, in addition, that there are numerous other aspects of the interpretation process, related to and inseparable from language, that can be studied. Although focusing on experimental psycholinguistic research, the paper suggests other approaches to language study that might be useful. It notes, for example, that sociolinguistic and ethnographic methods are currently contributing to research in oral language and could directly approach the interpretive process. The paper concludes that the act of interpreting literature is a language experience that includes the involvement of the senses, the memory, the imagination, and the intellect and that psycholinguistic research needs to expand understanding of the interaction between the art of interpreting and the interpreter's linguistic-cognitive behaviors. (FL)

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Language and Cognitive Processes:

Directions for Research in Interpretation

by

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Language and Cognitive Processes:

Directions for Research in Interpretation

Descriptions of the art of interpretation often note the importance of language in the interpretive process. Leland Roloff refers to language when he states that a performer ". . . generates a sense of the inevitability of experience from the symbols of feeling inherent in the printed word."[1] Chester Long defines interpretation as a transformation of remembered, written, or recorded words into spoken or behaved words.[2] The interaction of the language of the text and the linguistic behaviors of the reader is inevitable in the interpretation process. This paper suggests that the discipline would find advantages in extending research into the linguistic process.

The initial step in this research direction might be to examine psycholinguistic studies currently being done. Psycholinguists study the cognitive process of language comprehension and production,[3] including semantic, syntactic, or phonological processes and their interaction. To explore the interpretation process through research into the performer's psycholinguistic experience would not be simply borrowing the work of a separate academic field. Interpretation, since it constitutes a type of psycholinguistic experience, is a logical and appropriate process where such research can be applied.

At least three advantages may result from extending interpretation research through psycholinguistic study of the performer: (1) we may be

able to identify specific linguistic-cognitive skills a person uses and/or develops through interpretation experiences, (2) we may identify areas of the interpretive process where different or additional instruction could assist individuals' performance, and (3) we may identify possible means of diagnosing problems in the internal experience of a reader which have previously seemed inaccessible.

Much of the psycholinguistic research involves experimental or empirical methodologies. Interpretation research has previously focused on critical, historical, and descriptive methodologies with less frequent utilizations of experimental approaches, although many do exist. Gary Cronkhite was one who, as he stated in 1970, maintained "there are vast bodies of empirical findings and theory as well as numerous empirical research techniques which are relevant to the study of interpretation."[4] Contributors to a symposium on empirical and experimental studies located several areas where experimental approaches might be used for interpretation study. Marion Kleinau proposed directions for experimental research in sensory processes, personality interaction, and creativity.[5] These were suggestions on the study of the interpreter; in the same symposium, Jerry Reynolds proposed research directions for experimental study of the audience[6] and Katherine Loesch suggested empirical approaches for researching the text.[7]

A response to these articles by Cronkhite made an important suggestion. Before interpretation research can utilize scientific methods, a paradigm must be developed to locate and organize the kinds of questions to be investigated.[8] Cronkhite proposes the following as a paradigm of interpretation: ". . . the study of the interface between a written symbol system

and an oral-physical symbol system."[9] Again, the importance of language in the process surfaces in the description. This paper proposes an additional paradigm statement to guide research into the interpreter's psycholinguistic experience and behavior in performance. The proposed statement defines the interpreter as one interacting with a text through a process of psychological, linguistic, and cognitive experience-action. This paradigm can incorporate definitions of interpretation that have traditionally guided its study, but it also guides us into the relationship of psycholinguistic phenomena and the interpretation experience.

Of the three areas that may be located for experimental or empirical research, that of the interpreter, audience, and text, the present focus will be on the interpreter. Marion Kleinau pointed out that research into the interpreter as performer can investigate "the nature of the reader as a human being, his more permanent qualities and ways of behaving as they relate to oral interpretation," or "he can study the reader in the act of performance, observe overt behavior and seek to discover from this something about the reader's interior processes as he is engaged in the act."[10] The paradigm proposed in this paper involves the nature of a human being's language experiences and behavior, as well as overt and inner processes related to language.

Those who attempt to define interpretation are faced with a complex process, and a process that is different from any other. However the process is composed of identifiable language experiences and acts that include reading, comprehending, perceiving sentences, perceiving rhythm, producing sound, visualizing, remembering, discriminating ambiguities, pausing, expressing paralinguistic meaning, stressing, etc. Employing a language

behavior or psycholinguistic paradigm to research the interpretive process allows two important advances in interpretation research. As Cronkhite pointed out, much scientific research already exists that is usable for interpretation studies. The proposed psycholinguistic paradigm of interpretation allows us to readily see the relevance of much of the research in language behavior to questions we pose about the interpretation process. Another advantage in the use of psycholinguistic paradigm is the exploration of other questions using methods based on those employed in psycholinguistics. The current interest in the interior processes of the interpreter can be directed toward specific parts of the language process that we can identify or that have already been identified and studied by psycholinguists. The following sections will examine a few specific areas where language behavior research has already begun to address some of our questions about the interpretation process. Suggestions will be made as to how interpretation researchers can adapt and extend the research to investigate their questions about what happens to a person in the process of interpretation.

The experiments cited report findings concerning perception of imagery, use of memory, comprehension of words and sentences, use of pause and rhythm, and discrimination of ambiguous meaning. In the studies to be discussed there are indications that these processes are a part of reading aloud. In fact, the testing methods used frequently ask subjects to read aloud passages or sentences, read passages silently, or recall passages of prose read. The application of these studies in some cases is then very simple. Other studies present methods which require more extension to apply directly to the interpreter's experience.

Imagery

It has been assumed by theorists and instructors that an interpreter's experience includes involvement with imagery as he visualizes and expresses a piece of literature. Psycholinguists have researched imagery and the linguistic process in several ways that appear useful in making discoveries about the interpreter's experience of images. Such discoveries may assist in understanding individual differences in the ability to visualize images, a need previously identified by Kleinau.[11] If we can understand the process more fully, we may be able to develop ways of improving individuals' visualization. We may find ways of comparing imaginal demands within literary works. And, in addition, if we could discover whether the interpretive experience improves imaginal ability, we may be able to provide, with interpretation, a linguistic experience to allow persons to improve low imaginal ability.

Per Saugstad, in summarizing various investigations of imagery, concludes that the capacity for imagining does differ from one person to another.[12] One experiment by Hilary Klee and Michael Eysenck utilized visual and verbal interference tests to compare comprehension time of concrete and abstract sentences as the subjects heard both types of statements read. The experimental results indicated that persons with a high imagery ability processed (or understood) both the concrete and abstract sentences faster than those persons of low imagery ability. However, these researchers found evidence that imaginal processing of concrete sentences occurred to some extent in persons with either high or low imagery ability.[13] The tasks used in this study might be helpful in locating

individuals who have difficulties in imagery comprehension or visualization. To further apply this experiment to the interpreter's experience, the choice of material might be studied as it interacts with a reader's imaginal ability. And, while high imagery material may be more demanding upon memory and imagination for some persons than for others, for all readers the more abstract materials may present additional demands.

There are several psycholinguistic studies investigating the relative difficulty of comprehending abstract and concrete materials. These studies can be applied to the interpreter's experience with literary selections which would differ in tendencies toward concreteness and abstractness. V. M. Holmes and J. Langford developed test sentences containing (1) abstract nouns which did not denote things perceptible to the senses or (2) concrete nouns which denoted things perceptible to the senses. Sentences were presented to subjects on a screen and in one task they were asked to recall the sentences. The concrete sentences were not only comprehended faster, but were also recalled more frequently with less omission.[14] Before applying these findings to the interpreter's experience with literary materials, we can consider another experiment with concrete and abstract sentences which also indicates differing demands upon comprehension. Shannon Moeser's experiments required subjects to recall and identify meaning and wording changes in sets of concrete and abstract sentences. The findings indicated that concrete sentences were more accurately recalled while abstract words and sentences were more likely to be represented in a partial form. She suggests this may occur because concrete sentences, easier to represent in imagery, are more easily translated into iconic groupings or holistic representations in memory.[15]

The subjects in Moeser's experiments had been instructed to encode the test sentences (read them over until prepared to recall them at a later time). Instructions presented one of two encoding tasks: to encode for meaning recall and for wording recall. In both tasks the imagibility (concreteness) of the sentence seemed to affect ease of storage and retrieval.[16] Keith Holyoak suggests that the semantic relationships within low imagery sentences may be more complex, making such sentences more difficult to encode.[17] The act of interpretation, according to theoretical and logical indications, requires the reader to comprehend and store both imagistic and non-imagistic sentences. The studies cited indicate that cognitive-linguistic experiences, in response to sentences, differ relative to imagery level. These differing demands upon comprehension would be present in reading aloud contrasting types of material.

Ambiguity

Another characteristic of literary materials is the presence of ambiguity which creates symbolic or ironic effects through multiple reference. The interpreter's experience of these ambiguous words and sentences might be better understood. The cognitive-linguistic task of deciding how many or which of the multiple meanings to accept seems to require comprehending the presence of ambiguity. This linguistic process has been studied by several researchers, and the findings are relevant.

James Olson and Donald MacKay asked subjects to complete unfinished ambiguous sentences. The statements contained an ambiguous object (i.e. "buck") which the subject compared to another object by filling in the blank

with another noun. These researchers compared the time taken to complete ambiguous and nonambiguous sentences, and then also asked subjects to indicate for each item whether both meanings had been noticed. Results seemed to support a theory that ambiguity comprehension involves perceptual suppression. One meaning is suppressed while the other is activated after both meanings are initially comprehended.[18]

These findings seem logical and even obvious, but do indicate that the linguistic and cognitive experience of the interpreter's reading of ambiguous words can be studied. We may investigate whether some readers have difficulty perceiving ambiguity by using testing methods similar to this study. We may compare the demands of literary works in this area upon the reader. We may find that reading aloud ambiguous material reactivates multiple meanings each time it is performed, or that analytical choices are made only once. Some materials seem to demand constant reactivation of multiple meanings to carry symbolism. Thomas Hogaboam and Charles Perfetti suggest the possibility that lexical ambiguity increases complexity only when a second meaning is required by the context.[19] Many works of literature would provide such a context. This may place additional demands upon the reader during performance, or rehearsal may be found to alter or lessen this demand.

Some researchers of ambiguity provide evidence related to the questions that could be asked concerning the effect of a reader's prior analytical decisions, or a reader's review of critical materials about his selection. In one study, subjects listened to lexically ambiguous sentences, some conditioned by a neutral prior context and others by a disambiguating prior context. The findings indicated that some types of prior contexts eliminate

the "load effect,"[20] or the complexity of processing multiple meanings. Prior information presented to subjects that was related to the ambiguous word in the sentence, either in a preceding sentence or within the sentence, constituted the type of context that reduced the load.[21] Prior information in the form of critical reviews read, a reader's own analysis, the prior rehearsal, or perhaps another's performance of the same selection may affect the experience of ambiguity. Each of these effects can be studied by extending comprehension test sentences to that of the interpreter's materials.

These ambiguity studies varied in the manner of presentation of the ambiguous material. Some were presented in written form; others were read aloud, as in one study, with neutral intonations in respect to two possible interpretations. In the latter study, subjects heard these sentences, saw a picture that was consistent with one of two possible meanings, and judged the sentence true or false. Results indicate that when both possible interpretations were true with respect to the picture, ambiguity was most often perceived.[22] This method might be extended to investigate the connection of concrete images the reader perceives and the corresponding perception of ambiguity. Do persons with low imagery ability have more or less difficulty perceiving ambiguity? Does experience in oral reading of ambiguous material affect abilities to perceive ambiguity? Such questions could be investigated.

Pause, Rhythm, and Sound Production

An area of language behavior consistently discussed in interpretation theory concerns the flow of sound, influenced by pausing and by rhythm.

The important interactions between sound-silence durations and the linguistic-cognitive processes involved with them have been studied by psycholinguists. Two researchers included the reading of prepared texts in their experiments. These studies were not specifically designed to investigate the interpretive process, but their methods and findings are directly applicable to interpretation. Frieda Goldman-Eisler studied temporal rhythms, or regular speech and silence durations, as they occurred in spontaneous speech and in readings of texts. She discovered that when pause or silence time reached thirty percent of total reading or speaking time, a regular rhythm appeared. The conclusion is that the regular rhythm occurs when the reader or speaker is involved in reflection and planning. The regular rhythm attributed to cognitive activity would not appear when the speaker or reader was less cognitively involved.[23] Interpretation theorists' discussions of a performer's involvement with the literature, through concentration on what is being read, are directly compatible with her findings. Measurement of temporal rhythm may assist in determining when an interpreter has reached cognitive involvement with his selection. In addition to intuitively sensing a reader's "lack of involvement," it might then be possible to pinpoint in temporal rhythms the moments where the cognitive involvement decreases, contributing to less effectiveness in performance.

The study of pause time in reading was also studied by Eric Brown and Murray Miron, who state "perception of acceptable rhythm in oral reading performance may be one of the more important clues to the underlying process."[24] Professional radio readers were analyzed for pause behavior between successive lexical items. Sixty-four percent of the pause time was found to be predictable from syntactic analysis of the material, reflecting a reader's interpretation of grammatical structure of the sentences.[25] At

least part of an interpreter's cognitive activity, it would appear, is involved in responding to syntactic structure. This observation is already acknowledged in most introductory theory for interpreters. However, further study is needed to understand the nature of the cognitive demand that is placed upon the reader by linguistic structures which must be understood and transformed to oral presentation. Readers who have linguistic difficulty related to syntactic structures may have unique problems in verbalizing texts.

Another problem in the interpretive process, related to rhythm of silence and sound, is that of stress. Performers of metrical poetry, for example, are involved in locating and performing stress or accent. Understanding of the experience of prosodic structures may be expanded by examining a few studies by psycholinguists. James Martin proposed that heard stress is influenced by rhythmic context, or in other words, rhythm underlies judgements of stress.[26] His subjects heard two versions of sentences and judged relative stress on the last two words. The sentences presented were identical except for rhythmic structure and were "recorded in near monotone."[27] Differing rhythms produced variations in listeners' stress judgement where stress variation was not even acoustically present. If Martin's conclusion is accepted, we can ask further questions related to the interpreter's experience. If a reader attends to and captures the rhythm, perhaps he is not necessarily required to concentrate on stress. In an oral presentation, rhythm may demand more thought and intonational decision than does stress. When a performer analyzes a piece of literature, the analysis may be more beneficial if extended rhythmic and semantic investigations precede location of stress patterns. Martin's method could

be applied specifically to metrical poetic materials to investigate the interpreter's experience of stress and rhythm. The process involved in prosodic scansion and the performance of the scansion may be thus better understood.

The relationship of sound production and cognitive processes have been approached by reading specialists. These researchers have already acknowledged the psycholinguistic nature of reading. Joanna Williams states that the nature of the cognitive process is central to understanding the reading process.[28] Of interest to interpretive theory is William Page's distinction between "epistemological oral reading" and "oral pseudo-reading." In oral reading, the individual constructs meaning and knowledge simultaneously with phonological output; pseudoreading involves production of phonological output without construction of meaning.[29] The studies of pause in reading, described earlier, would support the distinction Page suggests. Lack of pause time had suggested less cognitive involvement which parallels pseudoreading.

One of the experimental studies of the reading process most relevant to the interpreter was done by Betty Ann Levy. She investigated the presence of speech recoding during the silent reading process, using auditory and visual interference while subjects read. Her findings were that in fluent reading, some type of transformation into a speech based code takes place, which may be articulatory, acoustic, auditory, imagistic, or another type of code. She also found evidence that such speech recoding had a role in memorability of what was read.[30] If fluent silent reading naturally involves a form of speech recoding, could practice in interpretation improve fluency by developing acoustic, auditory, and/or imagistic

coding? If the silent reading process involves speech recoding, is oral reading closer to the silent reading process than we have assumed? Are there then undiscovered relationships between reading ability and interpretive effectiveness? Is this relationship more important when the interpreter reads from his script than when he has memorized all or most of it? When performing from memory, what additional demands are placed upon cognitive-linguistic activity? The latter question is considered further in the next section.

Memory

Memory activity enters the interpretive process in several ways. In addition to memorization of script, the memory serves as a part of the reader's comprehension of the material. Psycholinguists have tested memory of texts and memory in comprehension of texts. An experiment conducted by Eugene Zechmeister, et. al., investigated relationships between memory of information in a prose passage and memory of location of the information on the printed page. Results showed that spatial memory for the page correlated to correct answers on information recall tasks.[31] This study may indicate a need to research an interpreter's use of the script in relation to memory of the text. For example, we can investigate the effects of changing scripts in the rehearsal process or substituting a new script just before performance. Is the linguistic-cognitive task of interpreting complicated by substituting a script that is visually different in size, shape, form, type size, etc., from the script that is already memorized?

Another psycholinguistic experiment in memory was designed to elicit

subjects' recall of passages memorized years earlier, such as "The Preamble," "Hamlet's Soliloquy," and the "Twenty-third Psalm" to test "very long term memory." The findings may be relevant to the interpreter's memory of a script. The subjects usually recalled original wording or none at all, and their recall tended to begin and end at surface grammatical structure boundaries corresponding to possible breath pause locations.[32] The memorization of a script may be similarly tested to determine whether syntax appears as important to the interpreter's recall of the literature. Perhaps recall could be tested at a given amount of time following performance. It would be helpful to know how much cognitive effort is required, that is additional to that of rehearsing a reading, in order to memorize the literature. Currently there is some theoretical disagreement about the desirability of total memory or script use; if the syntactic processing used in memorization is an additional activity beyond comprehension of syntax, for example, performers may complicate the interpretive experience by total memorization.

David Rubin proposed that memory of the familiar passages, since they corresponded to breath pause locations, might have been shallowly processed.[33] However, the temporal rhythm studies discussed above indicate that attention to syntactic structure, which would logically be breath pauses, is evidence of cognitive involvement.

Another use of memory is engaged within the interpretive act. Interpretation theorists have discussed the interaction of a reader's own remembered experiences with the language experience presented by the text. The associations provided by the performer become a part of the process and the performance. John Brockway, et. al., report an experiment in

memory of prose passages which supports this theory and contains some implications worth noting. Their subjects read two passages and completed free recall, recognition, and generated-statement tests. The results indicated that concepts were introduced by the subject while reading the passage which created memory for information that was not actually contained in the material. The researchers propose that the type of instructions given and the amount of time provided to read the material influence accuracy of recall.[34] Instructions to construct ten sentences about a passage using logical extensions or associations brought different results than did instructions to recall sentences accurately.[35]

The study discussed above may indicate a need for careful examination of ways to encourage beneficial interplay between the literature and the individual's memory. One might ask at what stage in preparation the interpreter's deliberate exploration of associations most influences memory in such a way as to form part of meaning for him. This experiment suggests that initial contact with the literature is one stage where the meaning can be significantly influenced by associations provided by the reader.

Another experiment further implies the effect that goals, created by instructions, have on subjects' memory of prose. Diane Schallert instructed subjects to rate paragraphs for ambiguity, a task involving a deep or semantic level of processing. In comparison, subjects were also instructed to simply recall the paragraph, a task requiring less depth of processing. The contrasting instructions affected memory accuracy more than allowing a greater length of time to complete the task. Time correlated with increased recall of information, but learner's intentions affected memory more.[36]

A goal of recollection may be less effective in memorization than a goal involving some semantic process. The results contain implications for a performer's cognitive involvement in rehearsal of scripts. Interpretation rehearsal, studied through a method similar to Schallert's prose recall, may be found much less effective if the interpreter is learning recollection than if he seeks to increase semantic understanding. More knowledge of rehearsal goals and resulting linguistic-cognitive experiences with the literature would be obtainable by extending memory studies.

Summary

This paper attempts to indicate the relevance of psycholinguistic research to the study of the interpretation process. Selected experiments demonstrate some of the possibilities for extending research into the language experience of an interpreter. Such an approach may lead into examining the experience of imagery, semantic processing of ambiguity, production of speech and silence, and exercise of memory. In addition, there are numerous other aspects of the interpretation process, related to and inseparable from language, that can be studied. Although this paper focused primarily on experimental psycholinguistic research, many other approaches to language study could be useful. For example, sociolinguistic and ethnographic methods currently contribute to research in oral language and could directly approach the interpretive process. Many such studies exist that are not based on experimental data but utilize a descriptive approach or search for recurring tendencies or rules in language behavior. Saugstad notes that perceiving, remembering, imagining, and thinking are

closely related to each other and to man's language.[37] The act of interpreting literature is a language experience which includes, as we traditionally have maintained, the involvement of the senses, the memory, the imagination, and the intellect. The importance of language has been noted in our standing definitions of the art; our research needs to extend understanding of the interaction between the art and the performer's linguistic-cognitive behaviors.

Footnotes

[1] Leland Roloff, The Perception and Evocation of Literature (Glenview, Ill.: Scott Foresman, 1973), p. 18.

[2] Chester Clayton Long, The Liberal Art of Interpretation (New York: Harper and Row, 1974), p. 11.

[3] Courtney Cazden, Child Language and Education (New York: Holt, Rinehart, and Winston, 1972), p. 6.

[4] Gary Cronkhite, "The Place of Aesthetics and Perception in a Paradigm of Interpretation." Western Speech, XXXIV (Fall 1970), 287.

[5] Marion Kleinau, "Experimental Studies in Oral Interpretation: The Interpreter," Western Speech, (Fall 1969), p. 227.

[6] Jerry Reynolds, "Experimental Studies in Oral Interpretation: The Audience," Western Speech, (Fall 1969), p. 241.

[7] Katherine Loesch, "Empirical Studies in Oral Interpretation: The Text," Western Speech, (Fall 1969), p. 250.

[8] Cronkhite, p. 287.

[9] Cronkhite, p. 283.

[10] Kleinau, p. 227.

[11] Kleinau, p. 232.

[12] Per Saugstad, A Theory of Communication and Use of Language (New

York: Columbia Univ. Press, 1977), p. 106.

[13] Hilary Klee and Michael Eysenck, "Comprehension of Abstract and Concrete Sentences," Journal of Verbal Learning and Verbal Behavior, 12 (1973), 526.

[14] V. M. Holmes and J. Langford, "Comprehension and Recall of Abstract and Concrete Sentences," Journal of Verbal Learning and Verbal Behavior, 15 (1976), 561-63.

[15] Shannon Dawn Moeser, "Memory for Meaning and Working in Concrete and Abstract Sentences," Journal of Verbal Learning and Verbal Behavior, 13 (1974), 682, 695-96.

[16] Moeser, p. 695.

[17] Keith Holyoak, "The Role of Imagery in the Evaluation of Sentences: Imagery or Semantic Factors," Journal of Verbal Learning and Verbal Behavior, 13 (1974), 163.

[18] James Olson and Donald MacKay, "Completion and Verification of Ambiguous Sentences," Journal of Verbal Learning and Verbal Behavior, 13 (1974), 458, 468.

[19] Thomas Hogaboam and Charles Perfetti, "Lexical Ambiguity and Sentence Perception," Journal of Verbal Learning and Verbal Behavior, 14 (1975), 274.

[20] David Swinney and David Hakes, "Effects of Prior Context Upon Lexical Access During Sentence Comprehension," Journal of Verbal Learning and Verbal Behavior, 15 (1976), 681, 688.

[21] Swinney and Hakes, p. 688.

[22] Peter Carey, Jacques Mehler, and Thomas Bever, "Judging the Veracity of Ambiguous Sentences," Journal of Verbal Learning and Verbal Behavior, 9 (1970), 243, 251.

[23] Frieda Goldman-Eisler, "Sequential Temporal Patterns and Cognitive Processes in Speech," in Psycholinguistics: Experiments in Spontaneous Speech (New York: Academic Press, 1968), pp. 122, 127, 132.

[24] Eric Brown and Murray Miron, "Lexical and Syntactic Predictors of Pause Time in Reading," Journal of Verbal Learning and Verbal Behavior, 10 (1971), 666.

[25] Brown and Miron, pp. 658, 665.

[26] James G. Martin, "Rhythm-Induced Judgement of Word Stress in Sentences," Journal of Verbal Learning and Verbal Behavior, 9 (1970), 629.

[27] Martin, pp. 627, 629.

[28] Joanna Williams, "New Theories of Reading: What Do They Tell Us," Teachers College Record, 75 (1974), 554.

[29] William Page, "The Author and the Reader in Writing and Reading," Research in the Teaching of English, 8 (1974), 174, 179.

[30] Betty Ann Levy, "Reading: Speech and Meaning Processes," Journal of Verbal Learning and Verbal Behavior, 16 (1977), 623, 636.

[31] Eugene B. Zechmeister, Jack McKillip, Stan Pasko, and Dale Bespalec, "Visual Memory for Place on the Page," The Journal of General Psychology, 92 (1975), 43, 51.

[32] David C. Rubin, "Very Long-Term Memory for Prose and Verse," Journal of Verbal Learning and Verbal Behavior, 16 (1977), 611-12.

[33] Rubin, pp. 611, 612.

[34] John Brockway, Donna Chmielewski, and Charles Cofer, "Remembering Prose: Productivity and Accuracy Constraints in Recognition Memory," Journal of Verbal Learning and Verbal Behavior, 13 (1974), 207.

[35] Brockway, et al., p. 197.

[36] Diane Schallert, "Improving Memory for Prose: The Relationship Between Depth of Processing and Context," Journal of Verbal Learning and Verbal Behavior, 15 (1976), 630.

[37] Saugstad, p. 89.

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